Chapter 2.2 WATER POLLUTION CONTROL PROGRAMS

Virginia Pollutant Discharge Elimination System (VPDES)

The Commonwealth of Virginia has operated a successful state discharge permit program since 1946. The Federal Water Pollution Act was passed requiring a uniform permit program nationwide, allowing all states to uniformly control industrial and municipal wastewater discharges. Some states elected to have the federal government manage their permit program. Virginia requested delegation of authority from EPA to administer its own permit program in conformance with VPDES (formally NPDES) regulations. In April 1975, Virginia was delegated the authority to administer the VPDES permit program. The VPDES Permit Regulation, 9 VAC 25-31-10 et seq, establishes the procedures and requirements for this Program.

VPDES permits establish limits on the quantity and/or concentration of pollutants allowed in the discharge. The VPDES permits implement the applicable requirements of federal effluent guidelines, as well as the Virginia Water Quality Standards. Effluent limits are written to ensure that the most appropriate of these regulations is applied to the discharge. The permittee must monitor the quality of the effluent and report the results to DEQ. The permit also requires the facility to be properly operated and maintained.

Permits may also contain additional requirements detailed as “Special Conditions” in the permit. Examples of these special conditions are:

1. Pretreatment programs for publicly owned treatment works (POTW’s) – Requirements for the POTW to have the ability to control the discharges from contributing industries.

2. Storm water pollution prevention

3. Toxics Management Program – this program requires the permittee to perform aquatic toxicity testing on the discharged effluent to determine reasonable potential for toxicity.

4. Land Application of Sewage Sludge

DEQ is utilizing the concept of general permits to streamline the permitting process and conserve resources of both the permittee and DEQ.

Municipal Facilities

There are approximately 636 “minor” municipal dischargers ranging in size from > 1,000 gallons per day and < 1 million gallons per day. Approximately 1,299 discharges are covered under the general permit for sewage discharges less than or equal to 1,000 gallons per day. These permit holders are required to monitor their discharge and report the results to DEQ. There are 98 “major” municipal discharges, discharging at least one million gallons per day (mgd). Major facilities range in size from one to 70 mgd and treat about 90 percent of all the sewage in Virginia.

Industrial Facilities

There are 496 Industrial dischargers currently permitted in the state. Of these, 47 are major facilities. Facilities are assigned major and minor status through an agreement between EPA and the DEQ.

General Permits

General permits are written for a general class of dischargers that have similar effluent characteristics. Virginia was granted general permit authority from EPA in May 1991. General permits have streamlined the VPDES permit process, and reduced the paperwork, time and expense of obtaining a permit. They have also allowed staff resources to be concentrated on individual permits, which have the greatest potential for impacting water quality. The processing of general permits requires the submittal of a Registration Statement. Upon staff review and acceptance of the Registration Statement, a General

Permit is sent to the owner. Currently eleven types of general VPDES permits are available in Virginia Petroleum Contaminated Discharges, Confined Animal Feeding Operations, Storm Water, Nonmetallic Mineral Mining, Domestic Sewage Discharges # 1,000 gallons per day, Non-Contact Cooling Water, Seafood Operations, Car Wash discharges, Fish Farms & Hatcheries, and Ready Mix Concrete Operations.

There are 4,397 discharges covered by the general permits in force in Virginia. Of these permits, 3,000 have received coverage under one of the two Storm Water General Permits. Storm Water General Permits are available for all "industrial activities" requiring permits under the November 1990 Federal Storm Water Regulations.

Fees For Permits And Certificates

The DEQ has adopted Regulation 9VAC 25-20-10 et seq. which establishes fee schedules for Permits. The establishment of a fee assessment and collection system is a requirement of Section 62.1-44.15:6 of Article 2.1 of the State Water Control Law enacted by the 1992 General Assembly. The assessment of fees allows DGIF, DCR, and DEQ to recover a portion of the cost of processing applications for permits or Certificates, which DEQ has the authority to issue. In its 2002 session, the General Assembly of Virginia amended and enacted revisions to Section 62.1-44.15:6 of the Code of Virginia increasing the maximum amounts for processing each type of permit/certificate category. Pursuant to the legislative amendment, 9 VAC 25-20-10 et seq. was modified to raise the allowable fees for permits and certificates effective July 1, 2002.

Fees have been established for VPDES, Virginia Pollution Abatement (VPA), Virginia Water Protection (VWP), Corrective Action Plan (CAP), Surface and Ground Water Withdrawals, and General Permits. Agricultural operations are exempt from payment of permit application fees. As amended July 1, 2002, fees may range from $600 for a general permit to $24,000 for a VPDES "Industrial Major" permit. There are also fees for modifications and waivers.

Toxics Management Program

Requirements for toxics monitoring are written into VPDES permits as special conditions. These monitoring requirements are developed by the DEQ Toxics Management Program (TMP), which originated in the early 1980's. The aim of the program is to involve all industrial and municipal VPDES permit holders that potentially discharge toxic pollutants into a systematic program of biological testing. This testing is designed to identify wastewater discharges that are toxic to aquatic life.

The need for a TMP is determined at the time of permit issuance, reissuance, or modification, using information provided by the permittee as part of the VPDES permit application, as well as additional data generated by the DEQ or other sources. Generally TMP special conditions include quarterly chronic and/or acute toxicity testing for a period of one-year using vertebrate and invertebrate species. Once the TMP data have been generated for a particular outfall, they are evaluated for reasonable potential. If the data do not show reasonable potential for toxicity, the permittee may continue biological testing at a much reduced frequency. However, if the data show reasonable potential, a WET (Whole Effluent Toxicity) limit is developed and put into the permit with a compliance schedule.

Pretreatment Program

The Pretreatment Program controls industrial discharges to POTW's. These municipal sewage treatment plants are usually not designed to treat toxic industrial wastes. Such wastes may interfere with the plant's biological treatment processes, pass through untreated into receiving waters, or contaminate POTW sludge to the extent that lawful disposal is precluded. The control authorities for the POTW's are charged with the responsibility of controlling their industrial users. EPA delegated oversight and regulation of the POTW pretreatment programs to the DEQ on April 14, 1989.

There are 36 POTW authorities in Virginia with approved pretreatment programs. These authorities control 67 separate permitted treatment facilities. Pretreatment programs for several other authorities have been submitted for review or are under development. Requirements for sewer use

ordinances, surveys of industrial users, or implementation of approved pretreatment programs are currently being incorporated into municipal VPDES permits.

Standards imposed on industrial users include general standards, prohibitive discharge standards, categorical standards, and local limits developed by POTWs. General standards are narrative prohibitions against pass-through and interference, applicable to all industrial users. Prohibitive discharge standards are also applicable to all industrial users and include limitations on parameters such as pH and temperature, measured in industrial discharges. Categorical standards are federal technology-based standards developed for certain categories of industries discharging to POTWs. In addition, POTWs are required to develop local limits for substances that have the potential to cause interference with treatment or pass through in toxic amounts to receiving waters.

A total of approximately 140 industries subject to federal categorical pretreatment standards are known to discharge to the POTW authorities noted above. In addition, there are approximately 200 other industries, which are considered significant dischargers to these POTWs. These industries are classified as such by having process wastewater flows of at least 25,000 gallons per day.

The DEQ regional office personnel conduct audits of POTW pretreatment programs and inspections of their significant industrial users. These users are controlled through municipal ordinances, and are required to self-monitor and report biennially to the municipality, which then reports to DEQ. Staff also inspect 10 additional categorical industrial users for small municipalities which may be developing a pretreatment program, or are not required to have a pretreatment program. The regional office staff also review various pretreatment-related submittals from the POTWs.

Personnel at the DEQ central office write regulations, issue guidance, and provide technical support for the state Pretreatment Program. They serve as a secondary level of review for all major pretreatment program submissions, and provide guidance, technical assistance, and training to the regional pretreatment and enforcement personnel. A “Pretreatment Procedures Technical Manual” has been developed, and is updated as part of this effort, in order to provide a central source of guidance to the regional offices and pretreatment POTWs. The central office section also updates required data elements for EPA’s Permit Compliance System from information gleaned from POTW audits and annual reports.

The Virginia Compliance Auditing System

The DEQ monitors the performance of municipal and industrial dischargers through a computerized compliance auditing system, which was instituted in September 1987. Under the VPDES permit program, major facilities are required to submit monthly plant performance reports based upon self-monitoring of the parameters listed in the discharge permit. Minor facilities report on an individually assigned frequency. These discharge-monitoring reports (DMRs) indicate the quality of plant effluent and whether any bypasses have occurred. Data from DMRs are entered into the DEQ's Comprehensive Environmental Database (CEDS) in the regional offices, which compares all parameters to permit limits or other enforcement actions to detect any violations.

When a permit or other enforcement action violation is observed through the CEDS, the system assesses weighting points according to the severity and frequency of the violation. In addition to the automatic detection of effluent violations through CEDS, compliance schedules, both in permits and enforcement actions as well as other required due dates, are tracked through CEDS. Weighting points are also assigned for single event violations reported to the DEQ by permittees, the public or other sources. All weighting point values are assessed and tallied for the previous six reporting periods. When accumulated values exceed specified limits, enforcement action may be initiated any time a violation is observed which is determined to cause environmental harm. Additional enforcement activity may result from problems discovered during on-site inspections.

The accumulated records of weighting point values are used by both Regional Office and Central Office staff as a tool to aid objective focus when determining appropriate enforcement activity with facilities in habitual permit noncompliance and on those facilities with the greatest potential for environmental harm. The program also ensures that permittees are fully aware of problems as they develop and have an opportunity to improve treatment in order to maintain compliance.

Virginia Pollution Abatement Permits

A Virginia Pollution Abatement (VPA) Permit may be issued by the SWCB whenever an owner handles wastes or wastewater in a manner that does not involve discharging to a sewage treatment facility or to state waters pursuant to a valid VPDES permit. The Virginia Pollution Abatement Permit Regulation (9 VAC 25-32-10 et. seq.) was adopted in 1996. Pollution abatement facilities approved through the VPA permit program may include pits, ponds, and lagoons for waste storage, treatment, or recycling. Permits are also required for on-site facilities, such as land treatment systems. The basis for approval for such systems includes assurance that waste or wastewater will not discharge directly into state surface waters under prescribed rainfall conditions, and for protection of ground water quality. Other industrial operations for which VPA permits are issued include timber products, textile, meat packing and rending, food processing, chemical products, metal plating, petroleum products distribution, car washes, laundromats, mining, animal waste and others.

An owner who applies for a VPA permit is also required to provide conceptual plans for the pollution abatement facility. The application and plans are then reviewed and a site inspection is made. Whenever pits, ponds, or lagoons, and/or land treatment is proposed as part of the pollution abatement facility, it is determined if a potential threat to ground water quality exists. If so, the owner must supply site evaluation data and, possibly, a ground water monitoring program prior to receiving approval for a VPA permit.

Land application is a major no-discharge alternative to a conventional discharging systems. In addition to eliminating a direct discharge of pollutants to state waters, an added benefit is derived from the fact that, for waste generators, land treatment is frequently a cost-effective alternative. Landowners receive the benefits of economic incentives in the form of fertilizer savings and soil conditioner value. The increasing use of land treatment by industry and municipalities is an encouraging trend. It reflects a growing acceptance on the part of waste generators and regulators alike that it is not only a cost-effective alternative, but also is a technically sound means of waste or wastewater utilization. As commercial fertilizer costs continue to increase and wastewater treatment requirements become more stringent, land application looks to be a favorable alternative for waste management for both the waste generator and landowner.

Water Quality Planning

DEQ uses Water Quality Management Plans (WQMPs), required by section 303(e) of the Clean Water Act, as the link between the water quality assessment required for this report and water quality based controls. These plans recommend control measures for the water quality problems identified and characterized in the 305(b) report. Control measures recommended in the plans are implemented through the VPDES permit system for point sources and through the application of Best Management Practices (BMPs) for nonpoint sources. WQMPs establish the strategy for returning impaired waters to meet water quality standards and for preventing the degradation of high quality waters.

Waterbodies are classified as effluent limited (E.L.) where water is known to meet state water quality standards after the application of technology-based effluent limits or other required controls. Waterbodies not meeting existing water quality standards after the application of technology-based effluent limits or controls are classified as water quality limited (W.Q.L.).

The DEQ uses the WQMPs to implement the total maximum daily load (TMDL) process required by Section 303(d) of the Clean Water Act. TMDLs are the allowable loadings or loading strategies for waterbodies classified as water quality limited. The TMDL process is a mechanism for integrating the point and nonpoint source loads contributing to the impairment of the waterbody. Only by controlling both sources of pollutants, can water quality be restored to the affected waterbodies.

TMDL Program

Section §303(d) of the 1972 Clean Water Act (CWA) requires the states to develop **T**otal **M**aximum **D**aily **L**oads (**TMDLs**) for waters on the 303(d) list that are not in compliance with water quality standards. In July1992, EPA promulgated regulations, 40 CFR §130.7, for implementing TMDLs as required by §303(d) of the 1972 CWA. The CWA and the enabling TMDL regulation did not contain

additional implementation measures. TMDL implementation is through the existing pollution reduction regulations and voluntary strategies.

In 1997, the Virginia General Assembly enacted the Water Quality Monitoring, Information, and Restoration Act (WQMIRA), §62.1-44.19:4 through 19:8 of the Code of Virginia. This statute directs DEQ to develop TMDLs for the waters on Virginia's 303(d) list. All TMDLs must be approved by EPA and adopted by the State Water Control Board as regulations. The state statute also directs DEQ to develop implementation plans for the approved TMDLs.

The State Water Control Law, Chapter 3.1, Article 1 of the Code of Virginia, authorizes the State Water Control Board to control and plan for the reduction of pollutants impacting the chemical and biological quality of the state's waters resulting in the degradation of the swimming, fishing, shell fishing, aquatic life, and drinking water uses.

The TMDL process contains three steps. The first step is to develop the TMDL. These are special restoration studies containing the following information:

- Quantification of the amount of a pollutant that the impaired water can assimilate and still meet water quality standards,
- Identification of all sources of pollution contributing to the violation of water quality standards. For bacteria TMDLs, examples of sources are run-off from pastures, failing septic tanks, leaking sewer lines, and wildlife.
- Quantification of the pollutant amount entering the stream from each source.
- Quantification of the reductions in pollutant loads needed for attainment of Water Quality Standards.

The second step in the TMDL process is developing an *"implementation plan"* for each TMDL. This plan must identify specific pollution control measures that must be undertaken to restore water quality, cost of the control measure, and the expected date for the attainment of water quality goals.

The third step of the TMDL process is the implementation of the TMDL through the existing pollution reduction regulations and other voluntary strategies.

Public participation is a very important part of the TMDL process. A series of public meetings are held for each TMDL. The focus of the first meeting is informing the public about the impairment, the TMDL process, and obtaining any public input for the TMDL development. The second meeting covers the identification of the pollutant sources and the relative amount of pollutant from each source. Additional smaller meetings may be held with "stakeholders" to ensure the pollutant information used in the study is accurate. The draft TMDL and allocations (pollutant reductions) is presented at the final meeting. All public meetings are advertised in local newspapers, through direct mailings, and in the Virginia Register.

In 1998, the American Canoe Association and the American Littoral Society filed a complaint against EPA for failure to comply with the provisions of §303(d) of the CWA in Virginia. In 1999, EPA signed a Consent Decree with the plaintiffs. The Consent Decree contained a TMDL development schedule through year 2010. This schedule requires TMDLs to be developed on the 377 impaired waters and the 260 condemned or restricted shellfish waters identified in Virginia's 1998 303(d) list. Since many of these impaired waters are impaired by more than one pollutant, the actual number of TMDLs to be developed by 2010 is 665. The following is a schedule for TMDL development in order to meet the 2010 deadline identified in the Consent Decree.

	TMDLs	**Shellfish TMDLs**
1999	1	
2000	12	
2002	30	
2004	81	
2006	90	130
2008	56	39
2010	135	91
Total	**405**	**260**

Currently, 41 TMDLs have been developed and approved by EPA and implementation plans for these TMDLs are in various stages of development.

Pollution Response Program

Pollution Response Program (PreP) was established to provide state response to pollution incidents, which affect waters of the Commonwealth. Regional offices maintain 24 hour PreP phone service to receive citizen pollution reports. After hours, weekends, and on holidays, these calls are received by the Emergency Operations Center (VAEOC) operated by the Department of Emergency Services. VAEOC forwards the information via electronic mail to the regional office PreP Coordinators and to the VDH. Regional investigators are prepared to investigate events that have the potential to cause adverse environmental effects on a 24-hour basis. Trained personnel are on call to investigate and assist when needed with coordinating remediation activities associated with oil pollution incidents, fish kills, underground storage tank (UST) incidents and a variety of other reported incidents.